

RECENT DISCOVERIES IN THE NEWFOUNDLAND FLORA

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(Continued from page 16)

But when we got above the timber, on the exposed limestone slope, the most amazing sight of all greeted us, solid carpets covering acres of slope, like a lawn, with three dominant plants: *Botrychium Lunaria* by thousands, growing 20 to 30 to a turf 2 decimeters across, the plants 1.5–2.5 dm. high, with sterile fronds up to 1 dm. long, so abundant that it was impossible to step without crushing the fronds; *Anemone multifida*, a local plant in Newfoundland or anywhere else, the larger clumps with 10 to 60 peduncles bearing rosy-pink flowers or whitish cottony heads of fruit; and *Festuca brachyphylla* Schult., frequent enough in western Newfoundland but not often in such abundance. Of course there were other things, the usual calciphiles of western Newfoundland: *Asplenium viride* Huds. (unless we are to take up for it the earlier *A. Trichomanes-ramosum* L.¹), *Woodsia glabella*, *Cryptogramma Stelleri* forming turf, *Thelypteris Robertiana* (Hoffm.) Slosson, *Polystichum Lonchitis*, *Anemone parviflora*, *Are-*

¹ This species has been universally known as *Asplenium viride* Hudson (1762). Nevertheless, the plant had an earlier and properly published name in *A. Trichomanes-ramosum* L. Sp. Pl. ii. 1082 (1753). The Linnean species drew its compound specific epithet from *Trichomanes ramosum* of Bauhin and of Ray and it was treated by Linnaeus as a species, *A. Trichomanes-ramosum*, in all three editions of *Species Plantarum*, a species wholly apart from *A. Trichomanes* L. (1753). When Hudson published *A. viride* (as *A. viridi*) he, likewise, cited as synonyms *Trichomanes ramosum* of Bauhin and of Ray. The Linnean name was promptly thrown aside in favor of Hudson's *A. viride*, apparently because the name given by Linnaeus might suggest to the uninformed that a forking state or perhaps a hybrid of *A. Trichomanes* L. was intended; and the name *A. Trichomanes-ramosum* even disappeared from the synonymy. Christensen, however, in *Index Filicum*, correctly cites it as a synonym of *A. viride* and suggests that it is the best name; but he refrains from following priority in this case and retains the later and more familiar name, saying

viride Huds. Fl. Angl. 385. 1762.

A. Trichomanes ramosum L. Sp. 2. 1083. 1753 (prob. nom. opt.).

At the same time (1753) Linnaeus had two other species with compound trivial names, *Asplenium Adiantum-nigrum* and *A. Ruta-muraria*. Lamarck tried to improve upon the former by renaming it *A. nigrum* (1778) and on the latter by calling it *A. murorum* (1778). Yet all botanists reject *A. nigrum* and retain the compound *A. Adiantum-nigrum*; and it would be almost sacrilege to call the Wall Rue anything but *A. Ruta-muraria*. The present rules of nomenclature do not allow us to discriminate against the name *A. Trichomanes-ramosum*, unless it is "a permanent source of confusion or error." Decision of the latter point is not always simple nor unanimous: to the uninformed the name *A. Trichomanes-ramosum* might be a source of confusion; to the thoroughly informed not. Similarly with *Juncus alpino-articulatus* Chaix. (1786) for the plant generally called *J. alpinus* Vill. (1787), the name *J. alpino-articulatus* might easily be a source of confusion, as suggesting some entanglement with the earlier *J. articulatus* L. (1753). Absolute clarity favors the retention of *Asplenium viride* and of *Juncus alpinus*. See note under *Juncus alpinus* in Part III.

naria dawsonensis Britton, etc. *Orobanche terrae-novae* Fern.,¹ in young flower, was superabundant; *Draba arabisans*, in a characteristic form with crowded fruits, was everywhere; and in the dry humus at the summit were two *Antennarias* with fuscous or brown involucres, wholly different from one another and both needing names (PLATES 265 and 268).

Evening was approaching and it was necessary to go down to the waiting motor boat; and we had only just begun the exploration of Hannah's Head. From the inner edge of the area we were on we looked up river to a continuation (PLATE 234) of the mountain falling as a sheer wall of white limestone to the Humber and at its base having a splendid talus. There, of course, are other species; but darkness was coming on and we were forced to quit. The big cliff and talus, easily accessible, still await exploration; and to the north, back of Hugh's Brook, we could see still another white wall, not yet reached by a botanist. Still further, Howley's geological map shows this band of limestones on the western border of the Long Range to extend for more than a hundred miles northward, cut into at their eastern ends by the antler-like arms of the bays and inlets—all unexplored! Hannah's Head, coincident with its change of name to Mt. Patricia, verily stands out as a princess among Newfoundland headlands.

In 1898, the late Rev. Arthur C. Waghorne, most active of resident botanical explorers, collected in woods at McIver's Cove, near the northern entrance to Humber Arm, an extraordinary willow. The fragmentary specimen in the Gray Herbarium has proved baffling to everyone who has tried to place it with any recognized species. It has been unsatisfactorily placed with *Salix phyllicifolia*, *S. Barclayi* Anderss., *S. Barclayi* subsp. *latiuscula* Anderss. and *S. discolor*, but it differs from all of them in some very important characters (to be discussed in Part III). We were anxious to rediscover it and to secure abundant material; but on the day set a strong wind came up and it was necessary to wait until the calm of late afternoon. When we got to McIver's Cove we found that the older people well remembered Waghorne and his visit there; but no one in the village had ever seen or heard of a *wild* willow. They had plenty of *S. viminalis* planted, but they were so thrilled at the idea of a willow being really *native* in their cove that a good proportion of the population joined

¹ RHODORA, xxviii. 235 (1927).

in the search. In three or more parties we scoured the region until darkness (about 10:30) cut the search short; but when we left we agreed with the statement given us on first landing, that at present no native willow grows at McIver's Cove.

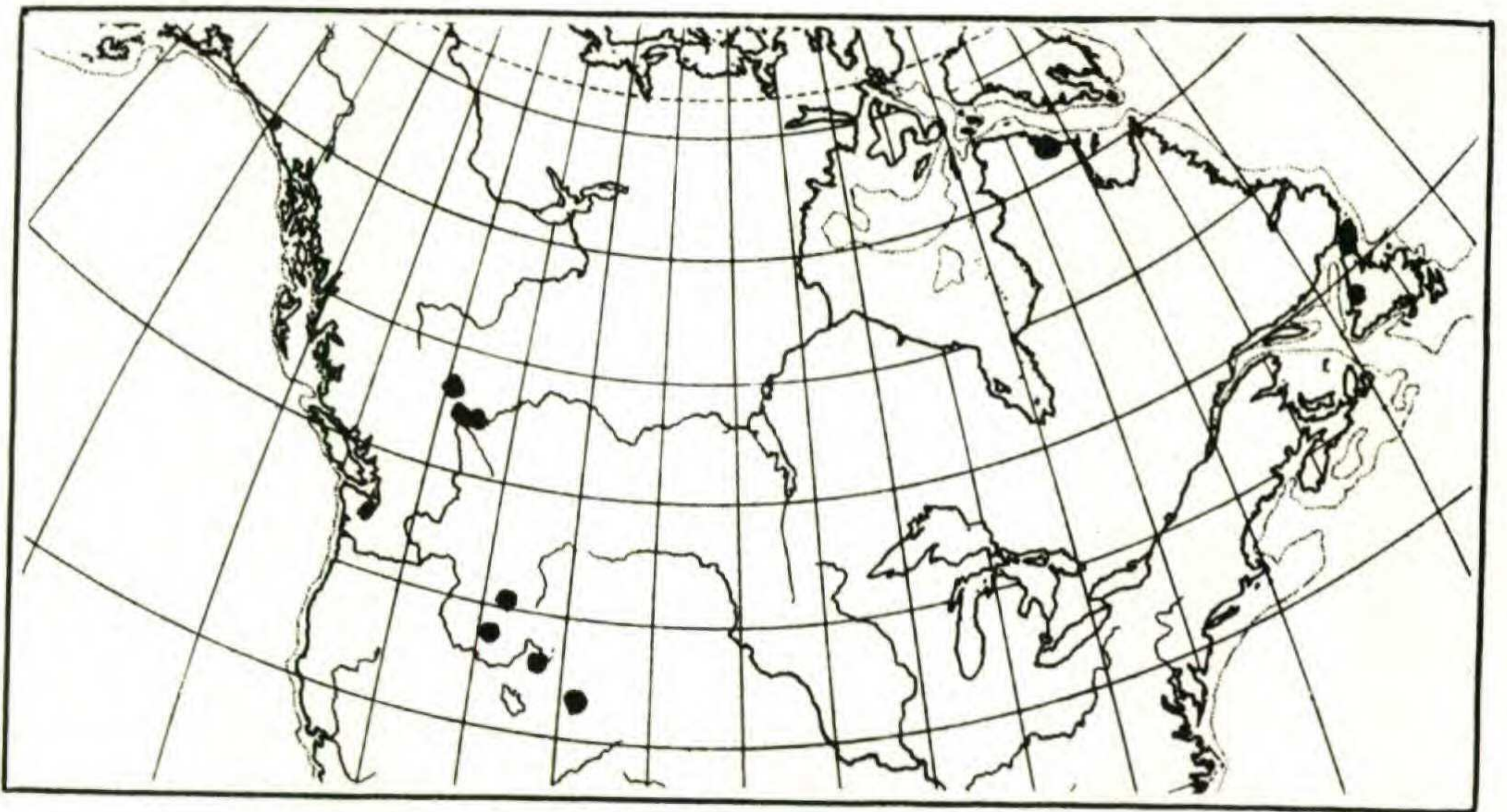
Mr. James Pennell, whose extensive grounds at Curling contain many interesting garden plants, showed us a handsome shrub which he and his father had transplanted from a thicket at Hugh's Brook. The shrub is *Crataegus laurentiana* Sargent; and, since any native *Crataegus* is rare in Newfoundland, we were glad to see it. Heretofore our only stations for the species had been on the banks of the Exploits.

Mr. S. Wheeler, a merchant at Curling, who had had much experience as a mine-pro prospector in the West and who intimately knows the mountains and the different rock-outcrops about the Bay of Islands, wanted us to see the Middle Arm. We and others before us had seen much of the Humber Arm, and Long and Fogg had seen the dreary serpentine wall of the North Arm, but we had never visited the Middle Arm. In imitation of the charity-supported but rapidly breeding "fishermen" we had once encountered farther north, who, content with their dole, argued "There are no fish, so what's the use of going out?", we should have repudiated the proposition a day or two earlier. But in the meantime we had been introduced to Hannah's Head, and nothing but the now undesired arrival of the "Sagona" would keep us from making the trip.

Mr. Wheeler was obliged to close his store for the day; the trip from Curling to Middle Arm Point, thence in to the head of Goose Arm or of Penguin Arm and back to Curling, would take much of the day (more than fifty miles, all told). He, therefore, invited us to breakfast with him in the early morning and to allow him to take coffee pot, frying pan and food for the trip; and on July 16, with Mr. Wheeler as experienced guide, wise philosopher and genial friend, we went for an 18-hour trip to the Middle Arm. It was after midnight when we got back; our three large collecting boxes were quite inadequate for the specimens; and we had given a small portion of the Middle Arm only the most hasty "once over." Whereas Humber Arm has many villages and from Petrie's Point to Humbermouth is cleared and denuded by man and fire, the Middle Arm is not only almost uninhabited but is bordered on all sides by high unspoiled cliffs of fantastically twisted limestones and calcareous slates. The moment

we rounded Middle Arm Point we were anxious to land, but our wiser counsellor calmly replied: "We haven't got anywhere yet."

At Cutwater Head, however, he drew in under the steep talus. Scrambling ashore, we started up the loose slaty debris only to come sliding back to the starting point. One turfy and bushy island on the talus was finally reached and there we anchored by means of our botanizing picks, reassembled our lost breaths and looked about: the usual masses of *Hedysarum alpinum* L. with its ornamental pink racemes; silvery-bronze masses of glistening *Shepherdia canadensis*, everywhere common in western Newfoundland but always puzzling us in the distance by its varied lustre; *Salix vestita* Pursh, as lovely a willow as grows, with satiny-white under surfaces and dark green



Map 3. Range of *OXYTROPIS FOLIOLOSA*.

upper surfaces of the rounded leaves, the large terminal buds red or purple; the regular Saxifrages of such places; *Artemisia canadensis*, scarcely in flower and delicately fringe-like; and numberless other calciphiles of which we never tire. With time only for the briefest of collecting, we brought our eyes to our insular anchorage: *Oxytropis foliolosa* Hooker (MAP 3), the rare Rocky Mountain species with 1-sided racemes of royal-purple flowers, heretofore known in eastern America only from shores of Hudson Strait and of the Straits of Belle Isle; *Astragalus eucosmus*, at our first station in western Newfoundland from south of Pistolet Bay; the most gigantic of Dandelions, a species of *Taraxacum* which we already knew from the Straits of Belle Isle,

the Mingan Islands and Anticosti, with extraordinarily large involucre, apparently an undescribed species (to be described and illustrated in Part III). Here, as on the other taluses we visited, *Primula laurentiana* Fern. and the more delicate *P. mistassinica* abounded, as did the subarctic *Festuca rubra* var. *arenaria* (Osbeck) Fries, *Parnassia parviflora*, and other less significant species. We wanted to search further, for we had collected only from a stranded bit of turfy carpet, and the talus and cliffs of Cutwater Head cover a vast area; but a gentle, though authoritative, "We haven't got anywhere yet" brought us back to the motor boat.

The western slope of Penguin Head looked so interesting that we spent a full hour there; then, rounding the point, we landed on a very different slope, merely the eastern dome of the same Head. Finally, after a few minutes on Druid's or Raglan Head and alluring glimpses up Penguin Arm and Goose Arm, with their unvisited limestone walls, we turned back, regretting the "Sagona" and the obligation to catch her. At ten o'clock Mr. Wheeler further tantalized us by stopping under the big cliffs at Cod Cove. It was twilight but we could see the big-headed *Taraxacum* again, though it was too dark to tackle the slippery wall. With this diverting background, we "boiled the kettle" and our day's botanizing was over: acres of "Limestone Polypody," *Thelypteris Robertiana*; *Kobresia simpliciuscula* (Wahlenb.) Mackenz., as fine as we had ever seen; *Carex rupestris* All., not previously known from the Bay; the arctic *Potentilla nivea* L. and *Dryas integrifolia* Vahl; *Rhododendron lapponicum* (see comment on p. 10); *Solidago multiradiata* Ait., the most northern of American goldenrods; one of the new brown-headed species of *Antennaria* (PLATE 265) of Hannah's Head and another (PLATE 268), very beautiful, with 1 or 2 white heads, a plant we had never before seen in Newfoundland; and the Newfoundland phase of *Arnica chionopappa* Fern. which Rydberg has dignified with the name *A. Fernaldii*.

At the opening of the week we had keenly regretted the necessity of waiting at much-botanized Bay of Islands; now we almost resented our promise to our hosts at Old Port au Choix to arrive on the next trip of the "Sagona." Only a very limited area about the Bay of Islands has really been closely botanized; we could spend a whole season with a center there, and then not exhaust the rich areas. We can't do it all. Most fascinating exploration awaits the right party; but, to do effective work they must be able to climb and they

should not waste time and strength on the "taboo-list" of ubiquitous and insignificant plants!

We reached Old Port au Choix soon after sunrise on July 19th, planning to secure the desired *Salix* and anything else overlooked by Bachelot de Pylaie in 1820 and by Wiegand, when he barely reached Pointe Riche from the south in 1910; then to be taken over to St. John's Island for the *Taraxacum*; and, finally, to catch the "Sagona" three days later on her trip south. On July 28th I wrote Mr. C. A. Weatherby a letter from which I excerpt passages which intimate why we were still at Old Port au Choix.

"Finally, the Sagona sailed on the 17th. On board were Mr. and Mrs. Morris, en route to Flower Cove, thence 48 miles by motor boat to Cook's Harbor to photograph *Habenaria straminea*! They had been waiting *ten* days at a neighboring village without knowing where to botanize; and we were all naturally aggrieved that we hadn't joined company for some of the real botanizing.

"We had selected Old Port au Choix for a short visit partly because the horizontal limestones of northwestern Newfoundland here come to the surface [PLATE 234] along every cove, forming extensive gravel (angular and very sharp)-covered barrens [PLATE 235] for miles around. Looking out our windows we see bare crests in all directions, and on the points (or 'heads') high cliffs with *very* high talus. The village occupies a narrow isthmus (perhaps $\frac{1}{4}$ mile across) [PLATE 235] between St. John Bay at the north and Ingornachoix Bay at the south, so that motor boats can be taken in either direction, without having to go many miles around Pointe Riche. Back of us to the north, with its southern edge 10 miles away, lies the range called The Doctor Hill, and beyond that, to the north, its mate, Bard Harbor Hill, where we got so many fine things four years ago.

"The people of Port au Choix (two miles away) and Old Port au Choix are the most intelligent and modern of any we have been thrown with in the 'outports.' The 'agent' (manager of fishing, etc.) is an interesting man, and our hosts, Stanley Lavers and his wife (*née* Breton) are a splendid pair. Mrs. Lavers had French parents, which is a salvation to our digestions. At most places in Newfoundland we get the horrible English cooking, gone a few degrees worse: boiled potatoes, brassicaceous vegetables (if any) and poor bread and soggy steamed puddings. But here we find a big house, with

three large spare rooms, a fine garden, cream-giving cows, plenty of eggs and poultry; and we live high—salmon, fresh cod, halibut, lobster, rabbit, poultry, cream that stands up in mounds (served on almost everything, including lobster), lettuce, carrots and greens! How can we ever get into training for mountain-climbing? Mrs. Lavers quickly recognized our dislike of grease and she boils, steams, bakes or broils everything; we are so satisfied with our home and our splendid food that we have eliminated some other projected areas and are staying on and on. This, however, is not botanically disadvantageous, for every day we bring in one or more 'n. sp.' or species 'new to Newfoundland.' Our 'laboratory' is the adjacent store of Narcisse Breton, a general store now going out of business, so that there is only a meagre remnant of stock on the shelves and we have only 1-5 purchasers visit us daily! Instead, the shelves are stacked with driers, ventilators, etc., and we put up our specimens on the counters. The visitors come for impossible purchases and then linger to comment on the beauty of our 'flowers' and they gladly give us the local names for the showy ones.

"The weather has been perfect, clear and rainless through the day, with showers in the night; consequently, we have been embarrassed by full presses and the temptation to go daily to a new headland or prairie-like barren, working three or four hours after supper putting things into press. I brought 1000 driers but we need twice as many and have to shift and manipulate to get out enough to put up each day's collecting; and, at that, we prepared a 'taboo-list' of a hundred or more species too generally distributed to collect. *Antennaria* and *Arnica* occupy much of the time. We have, I suppose, fifteen species of *Antennaria* collected in large quantity, at least five of them new species, some very peculiar, and several previously known only from the type locality many miles away. Everywhere we go *Arnica Fernaldii* Rydb. is seen, but always scattered; similarly *A. terrae-novae* [PLATE 270] and another (the handsomest of the group [PLATE 269] with stiffly erect fuzzy leaves [*A. tomentosa* J. M. Macoun]) are scattered all about. But on one side of one peninsula we came across a freely stoloniferous little species (*A. Griscomi* of the Shickshocks), making solid carpets on the turfy slopes and looking like our lawns of dandelions. And speaking of *Taraxacum*, that genus is in full swing, with many very different species.

"We very promptly came upon *Habenaria straminea* all about us—

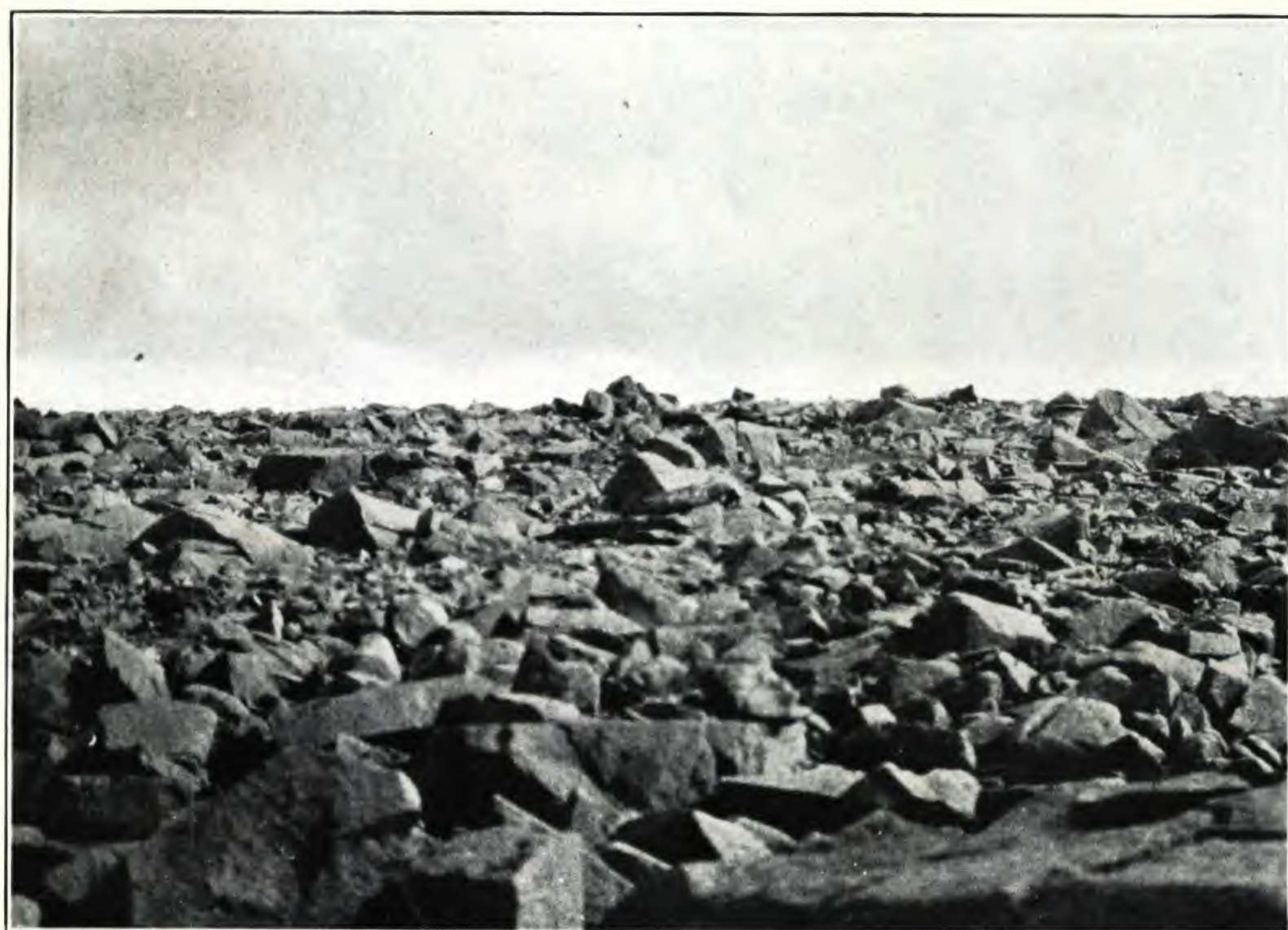
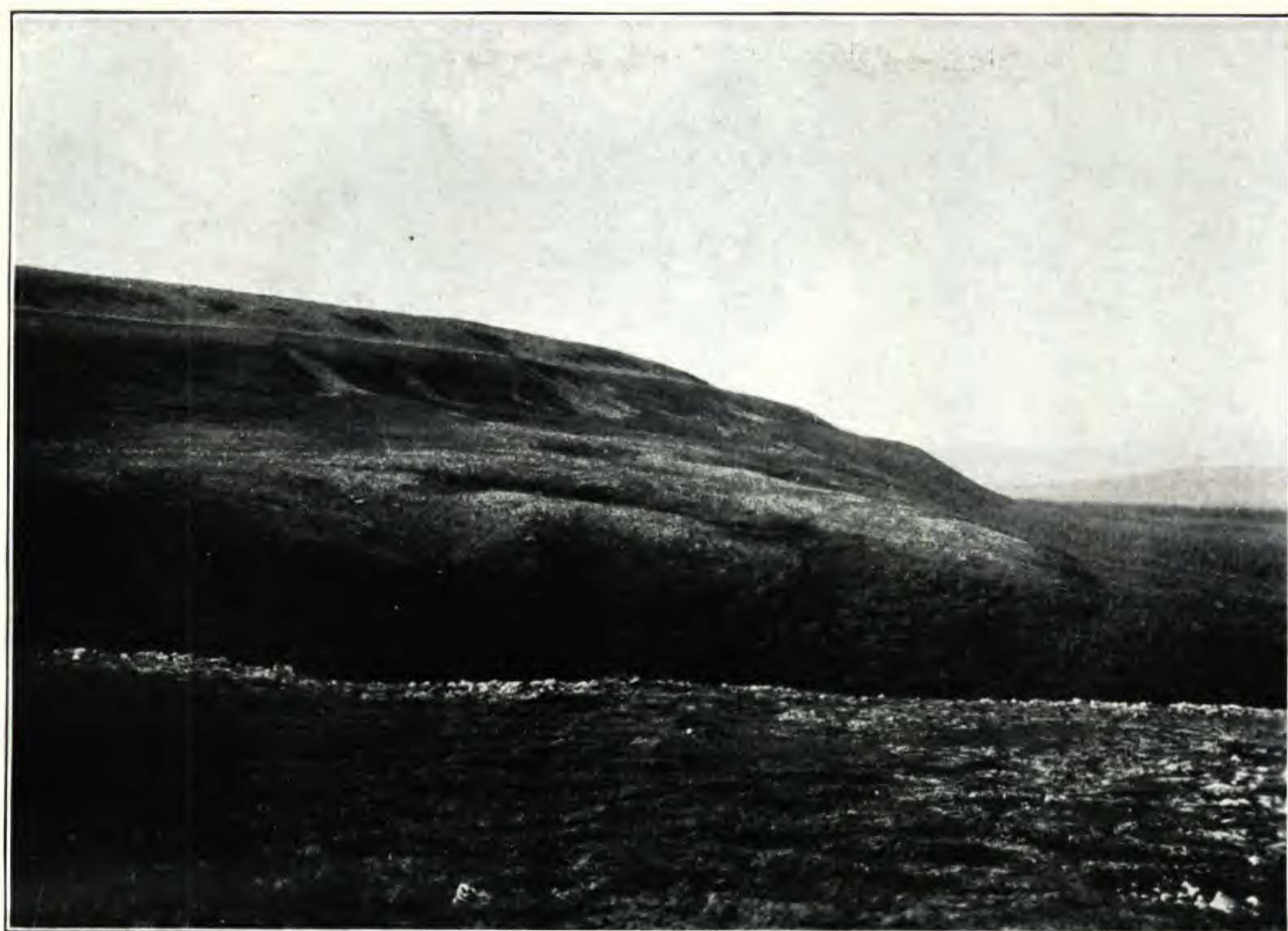
the deliciously vanilla-scented species Morris has gone so far to photograph! He may be returning south on the 'Sagona' this afternoon or tomorrow morning and I haven't the heart to break the news to him. Nor do I know whether to disconcert his plans by showing him another *Habenaria*. In 1820 Bachelot de la Pylaie spent eight days about Ingornachoix Bay and in his 'Voyage' he spoke of finding *Platanthera bifolia* of Europe. His record has always been discredited; but last Sunday, while Long was at home writing the weekly letters, Fogg and I took a stroll before supper (with our eyes shut, for it was Sunday) and in the heath-barren (*Empetrum*, *Dryas* and *Juniperus*) found a yellowish-flowered *Hab.* with two basal leaves, presumably what De la Pylaie had seen, though not really *H. bifolia*. Subsequently we have collected four other numbers of it and now pass it by—all in dry limestone barren.

"From my place at table I look out on a fine cliff a mile away, but one has to go there to learn that its crest is covered with two tiny arctic *Carices* [PLATE 247] quite new to us; and so it goes. Nineteen years ago Wiegand got a sterile branch of a strange willow at Pointe Riche. It has been recognized by both Schneider and me as a very distinct new species, but the material is wholly inadequate. It was that which really decided us on coming here—over one boat. We now have a beautiful series [PLATE 254], a handsome species nearest *S. lanata* of Lapland and Scotland. . . . I won't try to list all the hundreds of plants of real interest. It is a vast country and we have to omit 99% of it."

Nor in this supplementary account will I enumerate them all nor try to give the daily discoveries with exact chronology. As stated in the letter above quoted, it was impossible to go to a new stretch of open barren or to a new headland without adding to the novelties discovered. *Antennaria*, which we thought we had already well collected, was as thrilling as ever; one plant, abundant hereabouts, forming broad rosettes and having the brown heads with almost gamophyllous involucre (PLATE 264)—enough, except that in everything else it is a perfectly good *Antennaria*, to throw it out of the genus!; another, forming little barrel-shaped or columnar plants (PLATE 263) with an amazing number of cauline leaves; others, old friends, such as the very rare *A. Wiegandii* Fern. which we discovered four years earlier on St. John's Island, or the widest-spread species in Newfoundland, the green-leaved and white-headed *A. spathulata* Fern. But, since the



LIMESTONE BARRENS, OLD PORT AU CHOIX (upper).
LIMESTONE BARREN, ST. JOHN ISLAND (lower).



TERRACES, SOUTHERN SLOPE OF DOCTOR HILL (upper).
UNREMOVED ANGULAR BLOCKS, TABLELAND OF DOCTOR HILL (lower).

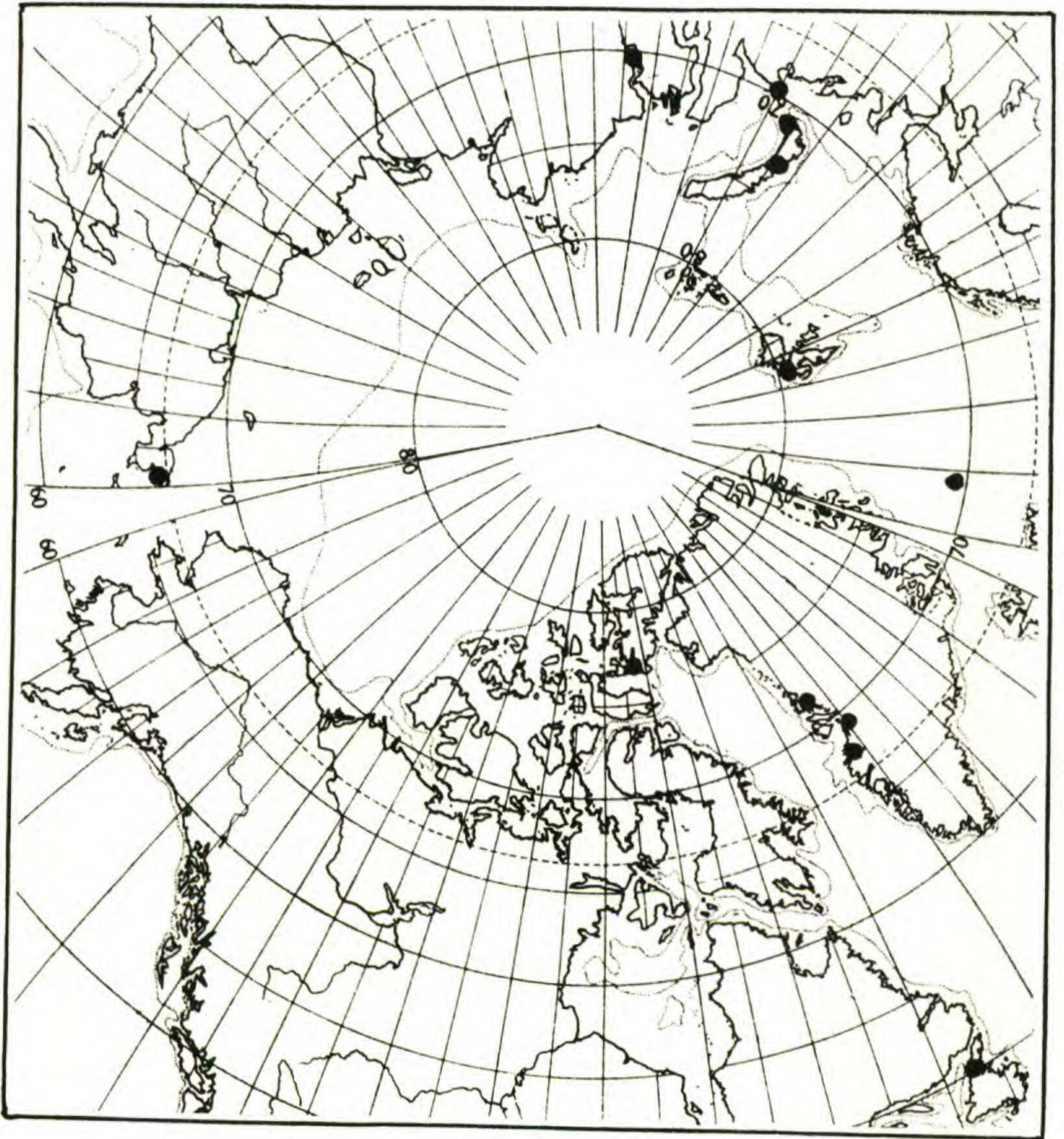
genus *Antennaria* in Newfoundland will be specially treated in Part III, it need not receive further attention here. *Arnica*, too, has been sufficiently discussed for the present. In general, the dry barrens and open slopes were carpeted with a fine assemblage of willows, all of them well known from western Newfoundland (except the new species related to *Salix lanata*), but enough to make a New Englander take notice: *S. reticulata* L., *vestita* Pursh, *Uva-ursi*, *arctophila* Cockerell, *cordifolia* Pursh (in great variety), *calcicola* Fernald & Wiegand and *candida*. In one depression on Pointe Riche *S. pedunculata* Fern., a large shrub with great aments nearly a decimeter long and previously known only from near the Straits of Belle Isle, made an extensive thicket.

On the dry barrens (PLATE 235) it was impossible to predict what would appear next. *Agrostis paludosa* Scribn., here as elsewhere inclined to belie its name, seems to be pretty clearly a variety of *A. borealis* (to be discussed in Part III). *Scirpus rufus*, which we had always considered a strict halophyte, here ran well back into the barrens, where it mingled with *Carex glacialis* Mackenz. and the always puzzling *Drabas* or with various forms of *Calamagrostis inexpansa* and the baffling forms of *Agropyron*.

In the letter above quoted reference was made to two tiny arctic *Carices*; they grew together on the dry barren back of Gargamelle Cove. One, the tiniest *Carex* I know, except the arctic *C. ursina* Dewey and *C. glacialis*, proves to be the high-arctic *C. incurva* var. *setina* (Christ) Kükenth. (PLATE 246, MAP 4), originally described from arctic Siberia, but now known also from Spitzbergen, Jan Mayen, western Greenland and Ellesmereland. Here, in latitude 51°, it is at sea-level and its interlocking companion is a new species (PLATE 246) which has been elsewhere found only in Greenland (to be discussed and illustrated in Part III).

Comandra Richardsiana was splendidly flowering and the *Lesquerella* of western Newfoundland and Anticosti (PLATE 258), which has been passing as the arctic *L. arctica* (Wormskj.) Wats. or as its var. *Purshii* Wats., was scattered in the dry shingle. Abundant new collections from Newfoundland and beautiful material of *L. arctica* recently received from Dr. Morten Porsild strengthen the conviction that our plant is not *L. arctica*; this matter will be further discussed in Part III. The little Tansy of northwestern Newfoundland, *Tanacetum huronense* var. *terrae-novae* Fern., crept through the

gravel, forming beautiful white plumes of foliage, with great golden buttons of flowers; and the monotony of ubiquitous but always beautiful *Dryas integrifolia* was occasionally broken by patches (mostly sterile) of the white-pubescent var. *canescens* Simmons, described from Ellesmereland but already known on Table Mt. at



Map 4. Range of CAREX INCURVA, var. SETINA.

Port au Port. In one dry thicket I was pleased to greet *Amelanchier Fernaldii* Wieg., a northern extension of range; and on one strip of gravel on Pointe Riche we came across *Campanula rotundifolia* displaying every conceivable variation from the common linear-

leaved extreme to others with oblong or even narrowly ovate cauline leaves, the latter var. *alaskana* Gray.

So much for some of the plants of dry barrens. Where it was slightly less dry, in humus-carpets or in depressions, *Habenaria straminea* Fern. (PLATE 251) abounded. The other *Habenaria* (PLATE 252), about which I wrote Weatherby, proves to be an extreme variation of the continental *H. Hookeri* of acid peats of woodlands, in northwestern Newfoundland known only in open limestone barrens. Its behavior is quite as reprehensible as that of *H. orbiculata*, discussed on p. 8. Another Newfoundland orchid, *Cypripedium parviflorum* var. *planipetalum* Fern. (PLATE 250), abounded in the peaty spots, very handsome and strikingly unlike the continental plant in its short and broad flat petals.

In a single unusually wet depression (wet enough to have standing water) on Pointe Riche the very rare and most distinct *Drosera linearis* made almost continuous turf. In Newfoundland we had previously known it only on the serpentine or magnesian limestone of Blomidon. In such places, also, *Carex bicolor* All. and *C. microglochin* Wahlenb. abound; and it is here that we look for *Epilobium davuricum* Fisch. and *Juncus albescens* (Lange) Fern. (PLATE 249). The latter species takes the place in northern North America of the European *J. triglumis* L., but, since the distinctions have only recently been pointed out (RHODORA, xxvi. 202), it is desirable to illustrate them.

The visit to Bard Harbor Hill and to Doctor Hill in 1925 had yielded so many good things that we wanted to get back to the mountains, especially to try the southern and eastern portion of Doctor Hill. So, with Mr. John Lavers as guide and aided by Mr. Allan Ofrey, we left the latter's place at Eddy's Cove on St. John Bay (Old Man's Cove of the charts) on the morning of July 30th and packed in to the southern slope of Doctor Hill, which on this side presents wonderfully accentuated terraces (PLATE 236) in the hard quartzite rock. Camp was established near timber-line on Deep Gulch and in the afternoon the first botanizing began. Deep Gulch, like the gulches on the northwest side of Doctor Hill and on Bard Harbor Hill, explored in 1925, has precipitous walls of thoroughly rotted rock and so does the next gulch to the west, the head of Yellow Brook. It was positively dangerous to climb far out on these walls, for great blocks would suddenly break out and go bounding down the ravine, to start others and, perhaps, an avalanche. Botanically Deep Gulch and Yellow

Brook were very similar to Deer Pond Gulch and Northwest Gulch on Bard Harbor Hill. Thickets of *Vaccinium ovalifolium* Sm. in young fruit and of *V. nubigenum* Fern. (PLATE 260) in young flower covered many dry banks. The difference in flowering season is striking. Repeatedly in the Shickshock Mountains and on the Doctor Hills we have found the same situation: in many years of field-experience with *V. ovalifolium* I have never been early enough to see flowers, but *V. nubigenum* lingers and flowers by the snow-banks into August. *Poa laxa* hung in fringe-like lines from the crevices of the rock, particularly on one precipitous wall which we could never approach without stirring the solicitousness of an eagle which, fearful for the nest, circled continuously above us until we got into another fork of the gulch. *Viola palustris* was just flowering, as was *Epilobium lactiflorum* Hausskn., both very local in Newfoundland. The crimson-flowered *Streptopus oreopolus* Fern., abounded; and many places by the brookside, especially at the head of Yellow Brook, were bordered by as fine clumps of *Athyrium alpestre* as those on Deer Pond Brook and in the Northwest Gulch. The Newfoundland plant is, apparently, much nearer to the typical Eurasian plant than to the two varieties in continental America.¹ The gravels and rocks in the brook as it descended the terraces were beautifully carpeted with *Epilobium Hornemanni*, *Alchemilla vulgaris* var. *vestita* (Buser) Fern. & Wieg. and var. *filicaulis* (Buser) Fern. & Wieg., the blue-flowered *Veronica humifusa*, and other species delightful to see but already well known from the Doctor Hills. On broad flats along the brook, with *Angelica laurentiana* Fern.,² *Epilobium angustifolium* had extraordinarily broad leaves (elliptic and 4–6 cm. broad), the Alaskan var. *macrophyllum* (Hausskn.) Fern.,³ heretofore known in the East only from the Magdalen Islands. About the heads of the gulches, where the heathy turf hung over from the terraces and the upper tableland, *Salix herbacea*, *Phyllodoce caerulea* and *Carex stylosa* C. A. Meyer, all rather localized species in Newfoundland, occur.

The open tableland (PLATE 236) itself was a disappointment, too dry for any but the most extreme xerophytes of any bleak and arid silicious summit. In a few places, where a damp sphagnous carpet occurred, the plants were the most ordinary of species of any wet peaty lowland in New England or even the Southeastern States. It

¹ RHODORA, xxx. 48, tt. 165, 166 (1928).

² RHODORA, xxviii. 222 (1926).

³ RHODORA, xx. 4 (1918).

was not thrilling to collect *Osmunda cinnamomea*, *O. Claytoniana* and *Carex canescens*. We badgered Mr. Lavers to produce an alpine lake or at least a bog, but the best he could do was a slight depression in the midst of the dry lichen-crusting blocks of rock. Here were two variations of the lowland *Carex vesicaria*: var. *jejuna* Fern.; and another (PLATE 248), undescribed, with very long and broad purple scales. *C. lenticularis*, *C. brunnescens* and other uninteresting species were here, and one very striking sedge. This formed great hassocks or "nigger-heads," much like those of *Carex stricta*, standing as vertical columns a foot or more high and consisting of ropy interwoven dead roots (much suggesting a small tree-fern). The two inches at the summit were a thin and dense turf (living on the dead waste of its own past years) of short leaves and miniature culms (up to 4 cm. high), with purple spikes often only 2 mm. long, but sometimes up to 1 cm. or more. This looked like "something"; but the best I can do is to make it out a starved and overcrowded state of the most variable and least interesting of mountain *Carices*, *C. concolor* R. Br. (*C. rigida* Good., not Schrank). Somehow this meagre and uninteresting sedge seemed to epitomize the botanical status of the southern tableland of the Doctor Hills, a poor place when contrasted with Bard Harbor Hill and the calcareous northwest slope of Doctor Hill at John Kanés's Ladder.¹

The boggy barrens ("barrns") and swales between Deep Gulch and Eddy's Cove had looked interesting, so, on the way out, we lingered at some of them. *Thelypteris cristata* (*Aspidium cristatum*) abounded in one of the swales, a real extension north; and the rather rare *Ranunculus Macounii* was abundant in swampy woods. *Epilobium nesophilum* Fern.,² a species of the region about the Gulf of St. Lawrence, abounded; and in one limy bog, where *Juncus stygius* var. *americanus* and *Parnassia parviflora* were abundant, we were amazed to find quantities of *Parnassia caroliniana*, quite new to Newfoundland.

The woods near the settlement at Eddy's Cove are terribly overrun by cattle, and almost none of the unspoiled forest-carpet remains. While Stanley Lavers and his father were packing the motor boat for the return to Old Port au Choix, Long, never through botanizing until the boat is leaving, crept on hands-and-knees among the ruined

¹ RHODORA, xxviii. 125, 126, t. 155 (1926).

² RHODORA, xxvii. 32 (1925).

and pastured knolls; and, when "all aboard" was shouted, he came half-beaming, half-reluctant, to the shore. For he held *Calypso bulbosa*, one of the rarer Newfoundland orchids, which the cattle had not wholly exterminated; and with it *Listera borealis* Morong, the northern cordilleran species which Marie-Victorin had been finding in the sea-shore spruce thickets of Anticosti and the Mingan Islands.

Long had but one individual of *Listera borealis* and he wanted another, for the agreement was that the *first* set of specimens should come to the Gray Herbarium! So, on August 5th we tried again. Some years ago Wiegand, Bartram and I were anxious to get upon our labels for the East Coast the localities, Lushe's Bight and Mosquito Bight, to say nothing of Come-by-Chance and Seldom-go-by; so, our party of 1929 having got into training by the mountain-trip, we now yearned to see our names on a label opposite the locality, Bustard Head. But, alas! no one seemed to have heard of the place and when we showed them our maps and charts they merely said, "Oh! Back Cove." Geographic nomenclature in Newfoundland follows neither the rule of strict priority nor established usage. The Highlands of St. John of all charts are now The Doctor Hills; Allan Ofrey lives at Eddy's Cove, but by the charts it is Old Man's Cove; the old Poverty Cove on the Straits is now Sandy Cove; the names of half the localities on our labels of 1910 are now obsolete, and in a few years our present labels may have become unintelligible!

Starting out on a real search for *Listera borealis*, we first landed on two islands at the entrance to Old Port au Choix, Savage's Island and Grassy Island. Both islands had the lushest of vegetation, but mostly the maritime species expected; and both were largely dominated by the gigantic *Angelica laurentiana* Fern., which grew in our doorway on the mainland, but here made dense thickets. And both had the most beautiful *Carex incurva* Lightf. which could be imagined, great lawn-like slopes of it 2 dm. deep, with globose-ovoid heads more than a centimeter thick. *Arabis alpina* L. was dominant on Grassy Island and the beautiful sky-blue *Gentiana nesophila* Holm¹ occurred sparingly on Savage's; and nesting terns were greatly disturbed by our presence. We wanted to go on and examine the other islands in St. John Bay (it had been so rough or we had been so busy that we had not crossed to St. John's Island for the *Taraxacum*); but we had

¹ Holm, Ott. Nat. xv. 111, 180, t. 13, fig. 6 (1901).

started for Back (or Bustard) Cove and for Eddy's (or Old Man's) Cove for the *Listera*.

Fogg and I were landed at the former place and were to follow the shore for four miles to Allan Ofrey's; Long went on to renew the search at the original spot. Fogg and I had a beautiful day, but with no very important discoveries: *Parnassia caroliniana* again and, of course, fine colonies on the turfy shores of *Malaxis brachypoda* (Gray) Fern.,¹ the little American orchid which has been mistaken for the European *M. monophyllos* (L.) Sw. *M. brachypoda* is probably more abundant in the limy region of northwestern Newfoundland than anywhere else; and, since doubt of its specific distinctness has been raised, it seems desirable to show the contrasts photographically (as PLATE 253).

Reaching Allan Ofrey's little house (a tiny house with a large family) in the late afternoon we were met by Long. We all had the same sad report: no *Listera borealis*. He and the cows before him had got it all; but we optimistically feel that another year (especially in July, instead of in August) it will be found in quantity. Accepting the cordial invitation of Allan and Mrs. Ofrey to have tea with them, we hailed the waiting boat crew and all hands crowded into the little kitchen and enjoyed such a delicious feast of lobster, lettuce, cream and hot biscuit as we shall never forget; but, while eating the rich cream, we could not help mourning that we were not getting *Listera borealis* and *Calypso* in undigested form. Then we went out to the canning shed, where we were given an explanation of up-to-date lobster canning, with all its carefully inspected details of disinfection. Then nothing would do but that we must have our pockets filled with cans of freshly put-up lobster!

The hearty cordiality and unspoiled enthusiasm of the Newfoundland fisherman, once the ice is broken and the restraint of diffidence removed, is proverbial. On this trip, as on a previous one, we had heard much of the great botanical promise of the distant Rubbly Hills. So, when we asked Allan if, some year after the lobster season is past, he could guide us to the Rubbly Hills and to give us an idea of the expense, we were gratified and not at all surprised by the answer: "Shure, I'll go wid yez. D'ere's nuttin' I loves so much as trabbelin' ober de country, and I always likes to go wid fonny folks. I've got me motor boat; dat don't cost nuttin'. I've got plenty of lobster

¹ RHODORA, xxviii. 176 (1926).